

UCAR® ALX™ Pin-less Electrode System

The Next Generation
of Graphite Electrodes



GRAFTECH HELPS CUSTOMERS OPERATE MORE EFFICIENTLY

- Reduce operating costs
- Increase productivity
- Maintain an uninterrupted production flow

ALX™ PIN-LESS ELECTRODES BENEFIT CUSTOMERS

- Reduced stub losses and breakages
- Lower consumption and improved electrode cost per ton⁽¹⁾
- Capacity for higher amps/power than pin-socket design



ALX™ PIN-LESS ELECTRODE TYPICAL PROPERTIES⁽²⁾

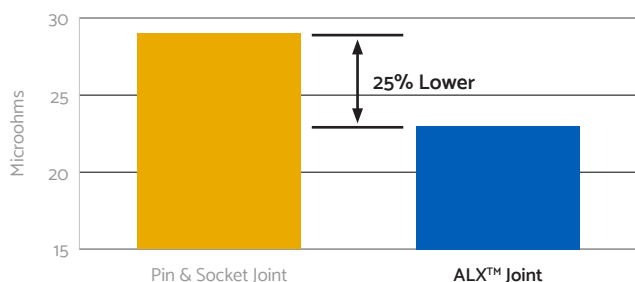
Material Property	Testing Method ⁽³⁾	Diameter 600mm (24")	Diameter 700-750mm (28-30")
Bulk Density (g/cm ³)	Full Piece	1.66 - 1.76	1.67 - 1.75
Specific Resistance (μOhm.m)	Full Piece	4.3 - 5.4	4.1 - 5.1
Flexural Strength (MPa)	4 Point Bending	8.0 - 12.0	8.5 - 12.5
Coefficient of Thermal Expansion (mm/mm/°K 10 ⁻⁶)	PATE RT to 100°C ⁽⁴⁾	0.1 - 0.6	0.1 - 0.5



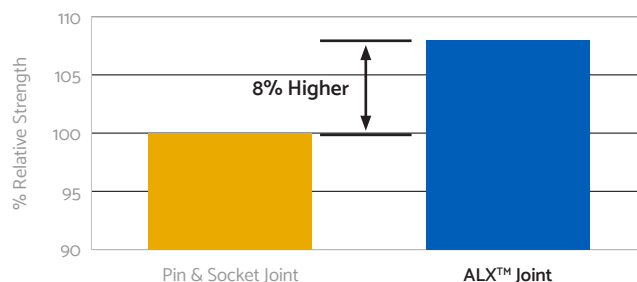
Proven to Reduce Losses
and Increase Productivity

AUTO-LOK™ TECHNOLOGY PROVIDES A DISASSEMBLY/ASSEMBLY RATIO GREATER THAN 10

Joint Electrical Resistivity⁽⁵⁾

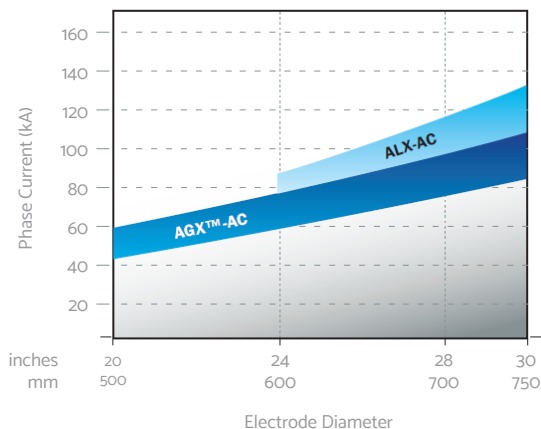


Joint Strength⁽⁵⁾

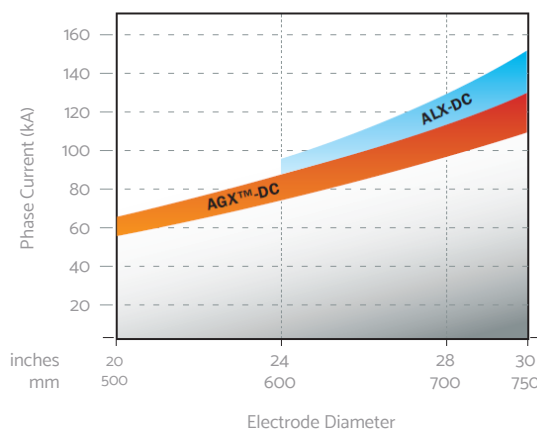


CURRENT CARRYING CAPACITIES

AC EAF Applications



DC EAF Applications



(1) Reduced stub losses and breakages, as well as lower consumption, improve cost of electrode per ton of steel.

(2) Displayed property values are typical ranges per GrafTech testing methods and constitute neither a guarantee or specification for individual electrode properties, nor any form of warranty, express or implied.

(3) GrafTech testing methods have been specifically developed for graphite electrode characterization. Properties are measured in the axial direction.

(4) PATE is a GrafTech invention for accurately measuring the coefficient of thermal expansion.

(5) For 600mm AGX™ electrodes.

ALX™ pin-less electrodes meet diameter tolerances by IEC 60239, JIS 7201 or NEMA CG1 as required by customers worldwide and are available in nominal lengths 2700, 3000 and 3400mm. Ash Content: ALX™ pin-less graphite electrodes typically have less than 0.2% impurities and do not contain elements harmful to steelmaking.

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